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ABSTRACT

This paper contrasts monologic and dialogic World Wide Web services in a library context. The first section contrasts monologic and dialogic ways of understanding human nature and the way knowledge is constructed. The second section describes the dialogic nature and potential of the Web, including intranets as dialogic spaces and the dialog between users and service providers. The third section presents three exemplary services that have succeeded to utilize this potential: a hypertext system for research documents at the Open University (United Kingdom); Sharium, a learning and research environment about the history, culture, and economic and social development of the American South, developed at the University of North Carolina at Chapel Hill; and the Finnish Public Library Frontpage, designed to help customers to satisfy their information needs and library professionals to share their expertise and keep informed about the latest happenings in the library field. The fourth section introduces the idea of the Web of Trust, a direction for the Web to develop in the future, stressing that an important factor in our decision-making is how much we trust the authenticity of the information on the Web. (Contains 18 references.) (MES)

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Monologue or Dialogue in the Web Environment? - The Role of Networked Library and Information Services in the Future

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Abstract

A shift from monologic to a more dialogic Web environment is taking place. Thus, the Web is becoming an arena of ideas, a place where people solve problems and create knowledge together. Library and information professionals should be involved in developing dialogic Web applications. The ideal digital library must be something more than just a collection of resources organised according to a classification scheme. In the future, libraries should implement and maintain Web services and applications that support collective creation of ideas, collaboration, debate and dialogue across distances. The author points out that digital information systems can be organised in various ways and an almost unlimited number of different views can be provided to one and the same metadata collection. Nowadays, it is more possible than ever before to build digital libraries that reflect the dimensions by which the information world of the users is organised. Therefore, librarians should position themselves in profound and continuous dialogue with the users of the services they are providing.

Paper

Introduction

The aim of this paper is to contrast monologic and dialogic Web services in a library context. The claim put forward is that a shift to a more dialogic Web environment is taking place. The Web in general and Intranets in particular are turning to be arenas of collaboration and conversation.

It is possible that due to our professional background we tend to forget that the Web today is not just a collection of databases or a large document management system. In this paper, I will explore alternative ways to develop Web services to library users. How could we incorporate the dialogic nature of the Web to digital libraries and other kinds of networked library and information services? To scrutinize these questions, I will proceed by first contrasting monologic and dialogic ways of understanding human nature and the way knowledge is constructed. Secondly, I will describe the dialogic nature and potential of the Web and, thirdly, present three exemplary services that have succeeded to utilise this potential.

Monologism and dialogism

In monologism, the individual is hold to be a Cartesian cognising subject, a self-disciplined monad or atom (Sampson 1993). Therefore, the monologic self is viewed as an independent and unique source of the meanings it has created. In pure monologism, concepts like collaborative learning or collective cognition do not make sense. The individual is the knower, the learner. Knowing is something internal, it is a subjective process. Knowledge, on the contrary, consists of objective universal facts. However, monologism is historically and culturally specific theory of a human subject, not a self-evident universal fact. The birth of monologism took place at the turn of the nineteenth century. It is linked to the rapid advancement of industry and capitalistic modes of production (Alasuutari 1992).

As opposed to monologism, dialogism stresses the intersubjective nature of language as a social system. According to dialogism, we produce and organise social reality by talking and writing. Dialogism assumes that knowledge is something people do together rather than an individual possession: "knowing is made and remade, reified and maintained, challenged and destroyed in communication: in dialogue, contest and negotiation" (Dervin 1994, p. 377). From this viewpoint it does not sound at all strange to talk about learning organisations or interactive learning environments, collective remembering or thinking institutions. A quote from a psychologist Jerome Bruner crystallises the central thrust of dialogism quite elegantly:

> "Our culturally adapted way of life depends upon shared meanings and shared concepts and depends as well upon shared modes of discourse for negotiating differences in meaning and interpretation." (Bruner 1990, pp. 12-13.)

Monologic or dialogic Web services?

Perhaps our view of the Web environment has been "librarianised". At least in many texts published in Finnish library magazines the Web is seen only as a collection of databases to seek information and documents from. In this sense, the Web is more or less explicitly presented as a collective document management system. This system is quite monologic by nature because it

supports only information retrieval, not conversation and collaboration.

Of course, the Web contains services that can be used for searching information. But the Web is also something else: it is an arena of conversation, co-operation and debate. If we believe the inventor of the Web, Tim Berners-Lee (1999), the Web is (or at least should be) essentially a tool for technology-mediated communication. It should enable dialogic negotiating processes aimed at collective problem solving and making of ideas.

Our ability to organise information is of course our strength when we are developing Web services. We are experts in using classification schemes and controlled vocabularies for describing documents in such a way that it becomes easier for users to find them. However, the dialogic potential of the Web should also be utilised in our services.

Library as an institution is very dialogic by nature. A physical building in which the library is located is not the essence of the library. We can have digital or virtual libraries on the Web. In this environment the physical existence of the files from which the library consists of on some hard disk is of course vital for the existence of the library. However, the users of the digital library system do not normally even think about these files when they navigate in the reality they can see on their screens.

The dialogic way to see the library is to view it as an institution that has an existence in-between people. Library, whether digital or physical, is in essence a collection of institutionalised practices (describing documents, searching for them, collaborating, clarifying information needs, etc.) that are closely connected to each other.

The danger is that because of our professional expertise we may get trapped in metaphors and concepts that prevent us from utilising the dialogic potential of the Web. However, if a library is a dialogic institution in a physical world, then the basic nature of the service should also be maintained in the Web. The ideal digital library should be something more than just a collection of classified documents.

The Web as a dialogic environment

The Web and Internet as a whole is an extremely communicative media. For example, it is nowadays possible for researchers on different continents to be in a video conference connection and to analyse the research data they both can see in a shared application. For Tim Berners-Lee (1999), the original idea guiding his development work has been to build a dialogic conversation space for generating ideas and knowledge in collaboration. The goal of his work and that of the World Wide Web Consortium (W3C), a standardisation body that has been directed by Berners-Lee since 1994, is to provide people with the means to interact electronically. This interaction should proceed as smoothly and easily as real life face-to-face encounters. The ideal is that by building hypertext pages people could easily express themselves, quickly acquire and transmit knowledge, overcome misunderstandings, and minimize duplication of effort. Thus, people in the group would be empowered to construct knowledge and solve problems together. People ought to be able not only to find any kind of document on the Web, but also to create them quite effortlessly.

Berners-Lee (ibid.) also points out that we should not only have the polished ready-made documents available to us but in most cases we should be given the possibility to examine the whole collective reasoning process that has been

taking place in the Web environment. This is the only way for us to get an idea of the conversations and debates that have led to the end point and final conclusions. If there is no link from the finished document to the earlier drafts, to the minutes of the meetings and to the background research, the dialogic nature of the document creation process is lost and much valuable information vanishes into thin air.

Intranets as dialogic spaces

Intranets are ideal spaces for dialogic collaboration, problem solving and debate. Often, for practical or security reasons, the history of the conversation around a theme that has been going on in an organisation can only be preserved to the Intranet. In Intranet, the participants of collaboration have the same organisational background and, at least ideally, share a level of trust. Therefore, their knowledge creation or problem solving processes can become more open, direct, and thus also more effective.

Intranets seem to open new kind of dialogic opportunities for different kinds of organisations to create collective memory banks. It is precisely Intranets that have made Knowledge Management (KM) possible. KM is an approach to collect and distribute the expertise available in organisations. The aim of the KM movement is to enable organisations to learn as dialogic organs. According to the KM theory, the organisations that are fast learners can gain competitive advantage in the business community. (Koening 1998.)

Dialogue between the users and the service providers

When creating collective memories for organisations or other kinds of conversation spaces we have to take care that, for example, the histories of specific conversations are easily found (Ackerman & Halverson 2000). Thus, it is extremely important for the service providers to study how the end users name, categorise and organise the world.

The easiest way to become acquainted with the users' information world is by asking them what kind of themes and topics they consider important. One example of a fruitful user-centered content management project is that described by Kelly Doran (1999). The library of a forest products company Weyerhaeuser took a task of building a metadata-based [1] browsing and searching system to the Intranet of the company. During the project the librarians build a thesaurus and classification system for the Intranet by closely listening the employees of the company and taking their needs into account. As a result of the project, the Intranet system of Weyerhaeuser became more usable.

It is important to utilise standard classification systems and thesauri when we organise digital collections. Numerous digital library projects have proven that these kind of tools are perhaps more necessary than ever before. For example, the widely used library tools can be used in cross-browsing distributed digital collections. However, we should also notice that the way information is organised in these standard systems and schemes might not be appropriate, e.g., for particular user groups. Traditional library tools may not be helpful because the information world of these groups is organised differently.

The freedom the digital environment gives to the service provider is almost unimaginable (Allen 1999). We do not have to care about the limits of space and time so much: digital information resources do not need to be organised in

one particular order on the shelves. Thus, one can provide many kinds of views to the same metadata.

When using traditional library systems, the user is supposed to learn the resource producer's vocabulary in order to find relevant information. With digital library and information systems this is not necessary. If these systems are implemented properly, users can search for information in their own language and on the basis of their own interests and knowledge structures (Talja & al. 1997). Thus, traditional classification schemes are still used in digital information systems. However, they are just one view to the metadata-based organisation of resources. The same collection can be organised in many ways reflecting the divergent needs and tasks of specific user groups.

We should also take care that the conversations going on in the organisation are reflected in the ways information is classified and presented in our services and systems. In the following I present three examples of networked information services that all seem to take seriously the dialogic nature of the Web as an information environment.

Dialogic web applications

Simon Buckingham Shum and his colleagues (Shum & al. 1999) at the Open University, UK are designing a hypertext system for research documents. Their starting point is the conversation that is going on in the target research field. The basic idea of the project is that the goal of an author is to persuade the reader to at least accept his perspective and knowledge claims. In a theoretical level this approach resembles Tuominen and Savolainen's (1997) treatment of the concept of information use.

The digital library service developed by Shum and his colleagues enables authors to provide context-sensitive metadata of a specific document and its relations to the existing collection. Thus, the developed metadata scheme and Web server architecture assists scholars in enriching their text by making claims about the relationship of their research results to existing ideas and documents. Shum and his colleagues argue that their system makes it possible to trace "the intellectual lineage of a document's ideas, and for assessing the subsequent impact of those ideas, that is, how they have been challenged, supported or appropriated by others" (Shum & al. 1999, p. 424). The system can automatically assist researchers and students in analysing the development of collective understanding of a research community by, for example, visualising relations between different research efforts, scholarly perspectives and debates. Thus, the system in essence is an innovative way to use the scholarly conversation as a metadata tool. It is not aimed solely at seeking information, but for understanding a body of knowledge in a larger context.

Another example comes from Diane H. Sonnenwald and her colleagues (Sonnenwald & al. 1999) from the University of Northern Carolina at Chapel Hill, USA. In the American Front Porch (AFP) project they are developing a learning and research environment, a "Sharium", about the history, culture, and economic and social development of the American South. The project provides tools for finding documents, discussing them and creating information in form of new documents. The primary aim of the project is to support collaboration among users, subject experts and library staff across distances to locate and create information resources. Sonnenwald and her colleagues stress the role of communication and collaboration in all human information behaviour. The services developed in the project include dynamic reference interview and information exploration applications as well as tools supporting collaborative

information creation, review, and problem solving. Many of these functions can take place in audio- or videoconferences. Sonnenwald and her colleagues state that these kinds of collaboration services require mechanisms for people to identify one another as well as tools for conducting the discussion. The project seems to be extremely challenging. However, the dialogic ideas, services and tools developed in the project can also be applied to other kinds of hybrid digital libraries and learning environments.

The third example comes from the collective effort of the Finnish public libraries. Finnish Public Library Frontpage (PULSE 2000) is designed to help both customers to satisfy their information needs and library professionals to share their expertise and keep informed about latest happenings in the library field. It contains, for example, a Link Library database of classified and quality-controlled information resources. The important dialogic tool developed in the project is Ask A Librarian enquiry service that has been in use for nearly one and a half years. This service provides a tool for collaborative reference work. In March 2000, there were 18 participating libraries in the service. Over 1300 questions were answered by the librarians in 1999. The goal of the service is make the collective expertise of library professionals more available to users.

A user can ask any kinds of questions from the service for free by using a Web-based form. The service providers promise that an answer to any question will be delivered to the email address given by the user within three working days. Answers are provided by using library collections, databases and the Internet. Because of the vast amount of sources available, the answers given are not always exhaustive but will anyhow help the user to examine the question more deeply. The questions and answers are also automatically archived for further use. In the archive of the service, no personal details of users are exposed, just the questions that have been asked and the answers provided to them. The themes of the questions have varied from the running speed of elephants to qualifications of a librarian to studying in another European country, just to take a few examples. The librarians can solve the problems presented by the users dialogically. However, usually only one answer is sent to each question.

Developing the Web of Trust

When we are developing ideas together and collaborating we have to trust our partners. We have to be able to authenticate them to be exactly the persons they claim to be. This is of course much easier in face-to-face encounters than when communication is technologically mediated. It is possible to imitate the voice of another person on the phone and to create invented personalities in chatting services on the Web.

For dialogue and collaboration we need trust. As mentioned before, trust is often more easily developed in the Intranet than in open Internet environments. Regardless of the environment the collaboration is taking place in we need to be able to identify our partners and also authenticate the documents they claim to have authored or have presented as reliable information sources. In addition, we have to be sure that our partners will not steal our ideas or exploit them in other ways.

The question of document authenticity becomes extremely important in digital environments. For example, altering a few bits here and there in a digital document does not necessarily make any traceable or perceptible change in the document as such. With just a little effort one can copy documents, falsify them and then claim that they are the original ones. Nowadays, there are more

possibilities to fraudulent behaviour in this sense than ever before. It can also happen very easily that research results, data or pieces of historical evidence get unintentionally destroyed or distorted when they are in a digital format. (Høel 1998.)

Tim Berners-Lee (1999) has presented an idea about the Web of Trust as a direction for the Web to develop in the future. He stresses that as we decide what we are going to link to, read or purchase on the Web, an important factor of our decision-making is how much we trust the authenticity of the information we are viewing. Thus, the Web of Trust has to evolve to support communication and collaboration in personal, group and global level. The kind of technological infrastructure needed for the Web of Trust to emerge is a combination of digitally signed documents and trust metadata with reasoning engines or automated agents that can understand trust sentences made by different persons or organisations.

> "As the Web is used to represent more and more of what goes on in the real life, establishing trust gets more complicated. Right now, the real-life situation is too complicated for our online tools." (Berners-Lee 1999, p. 193.)

Actually, expressing trust sentences based on metadata is a process that is already going on in the Web. In fact, libraries seem to have an active role in this process. Quality-controlled subject or information gateways are Internet services that involve manual effort in choosing electronic resources and describing them in a way that makes resource collections easily searchable and browsable (Koch 2000). When search engines include all possible resources in their indexes and compete with their sizes, information gateways apply the "less is beautiful" principle. Their mission is to filter only the high-quality resources from the Web so that users do not have to do all the quality control and authenticity checking by themselves. Information gateways maintained by the library community are also more restrictive in their quality-control politics than commercial services, like Yahoo, that are also based on a subject-structure approach(2).

Conclusion

During the centuries, libraries have acquired a position of a provider of reliable and quality-controlled information. This position should be maintained, not lost, in a digital environment. The dialogic Web of Trust that is being developed today needs organisations that have a cognitive authority to authenticate information resources.

Digital information systems can be organised in various ways and almost an unlimited number of different views can be provided to one and the same collection. Thus, it is more possible than ever before to build digital libraries and other kind of information services that reflect the dimensions by which the information world of the users is organised. In the future, libraries should built Web services that support collective creation of ideas, collaboration, debate and dialogue across distances. Therefore, library and information professionals should also position themselves in a profound dialogue with the users.

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Footnotes

1. Metadata means structured resource descriptions either embedded into documents themselves or located externally to them (for example, in databases). Libraries have catalogued and organised collections of printed materials for centuries using metadata. Nevertheless, librarians have not used the word "metadata" to describe the cataloguing work until recently. Metadata is also used in constructing organised collections of information resources like, for example, digital libraries. Furthermore, metadata is a mean of representing information about Web resources in a way that is easy for machines to deal with. Metadata will facilitate searching, helping authors to describe their documents in ways that search engines, browsers and Web crawlers can understand. It is believed that as a result of a wide adoption of metadata, users will have better information services available to them. (cf. Hämäläinen & Tuominen 1999.)

2. Representative examples of European quality-controlled subject gateways can be found from Renardus Web site (Renardus 2000).

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